What is claimed is:

1   1. A method of organizing image data forming a picture

2   image defined by a plurality of levels, each level including

3   a plurality of subpicture areas corresponding to a different

4   level of image data resolution relative to image data

5   resolution levels corresponding to subpicture areas in other

6   levels, the method comprising:

7   receiving a subpicture element having image data for

8   inclusion in the picture image;

9   identifying a subpicture area in which the subpicture

10   element may be placed, the identified subpicture area being

11   in the lowest possible level of the picture image;

12   placing the image data of the subpicture element in the

13   identified subpicture area;

14   upon a determination that the amount of image data in

15   the identified subpicture area exceeds a predetermined

16   maximum amount following the step of placing, identifying

17   overlapping subpicture areas in a level corresponding to the

18   next higher image data resolution level that overlaps the

19   identified subpicture area; and

20   following the step of identifying, placing image data

21   of one or more subpicture elements from the identified

22   subpicture area into at least one of the overlapping

23   subpicture areas from subpicture.

1   2. The method of claim 1, further comprising:

2   repeating the steps of selecting a subpicture element,

3   identifying a subpicture area, placing the image data,

4   identifying overlapping subpicture areas and placing one or

5   more subpicture elements for a new subpicture element.

1   3. The method of claim 1, further comprising:

2   upon a determination that the amount of image data in

3   the identified subpicture area exceeds a predetermined

4   maximum amount following the step of placing and that the

5   identified subpicture area is in a level corresponding to a

6   highest image data resolution level, redefining the

7   subpicture areas of the picture image.

1   4. The method of claim 1, further comprising:

2   upon a determination that the number of overlapping

3   subpicture areas is zero, redefining the subpicture areas of

4   the picture image.

1   5. The method of claim 1, further comprising:

2   upon a determination that the amount of image data in

3   the identified subpicture area exceeds the predetermined

4   maximum following the step of placing image data of one or

5   more subpicture elements, redefining the subpicture areas of

6   the picture image.

1   6. The method of claim 1, wherein:

2   the at least one of the overlapping subpicture areas

3   comprise the overlapping subpicture areas that are capable

4   of receiving image data from the identified subpicture area

5   so that the amount of image data in the identified subpicture

6   area is less than the predetermined maximum amount.

1   7. The method of claim 1, further comprising:

2   selectively redefining the subpicture areas of the

3   picture image.

1   8. The method of claim 7, further comprising:

2   initially receiving a picture scheme for the picture

3   image defining the subpicture areas within the levels;

4   wherein the step of selectively redefining comprises:

5   extracting placed subpicture elements;

6   receiving a new picture scheme for a new picture

7   image; and

8   repeating the steps of selecting a subpicture

9   element, identifying a subpicture area, placing the image data,

10   identifying overlapping subpicture areas and placing one or

11   more subpicture elements for each of the extracted subpicture

12   elements.

1   9. The method of claim 1, further comprising:

2   identifying the overlapping subpicture area capable of

3   receiving the greatest amount of image data from the identified

4   subpicture area; and

5   upon a determination that the amount of image data in the

6   identified subpicture area less the greatest amount of image

7   data exceeds a predetermined minimum amount following the step

8   of placing, redefining the subpicture areas of the picture

9   image.

1   10. The method of claim 1, wherein:

2   following the step of identifying overlapping subpicture

3   areas, placing image data of one or more subpicture elements

4   into the at least one subpicture area from one or more

5   subpicture areas that overlap the at least one subpicture area

6   in a next level corresponding to a lower image data resolution

7   level.

1   11. A computer software product for a graphics display

2   system that organizes image data forming a picture image

3   defined by a plurality of levels, each level including a

4   plurality of subpicture areas corresponding to a different

5   level of image data resolution relative to image data

6   resolution levels corresponding to subpicture areas in other

7   levels, the computer software product including instructions

8   for:

9   receiving a subpicture element having image data for

10   inclusion in the picture image;

11   identifying a subpicture area in which the subpicture

12   element may be placed, the identified subpicture area being

13   in the lowest possible level of the picture image;

14   placing the image data of the subpicture element in the

15   identified subpicture area;

16   upon a determination that the amount of image data in

17   the identified subpicture area exceeds a predetermined

18   maximum amount following the instruction for placing,

19   identifying overlapping subpicture areas in a level

20   corresponding to the next higher image data resolution level

21   that overlaps the identified subpicture area; and

22   following the instruction for identifying, placing image

23   data of one or more subpicture elements from the identified

24   subpicture area into at least one of the overlapping

25   subpicture areas.

1   12. The computer software product of claim 11, further

2   comprising an instruction for:

3   repeating the instructions of selecting a subpicture

4   element, identifying a subpicture area, placing the image

5   data, identifying overlapping subpicture areas and placing

6   one or more subpicture elements for a new subpicture element.

1   13. The computer software product of claim 11, further

2   comprising an instruction for:

3   upon a determination that the amount of image data in

4   the identified subpicture area exceeds a predetermined

5   maximum amount following the instruction for placing and that

6   the identified subpicture area is in a level corresponding to

7   a highest image data resolution level, redefining the

8   subpicture areas of the picture image.

1   14. The computer software product of claim 11, further

2   comprising an instruction for:

3   upon a determination that the number of overlapping

4   subpicture areas is zero, redefining the subpicture areas of

5   the picture image.

1   15. The computer software product of claim 11, further

2   comprising an instruction for:

3   upon a determination that the amount of image data in

4   the identified subpicture area exceeds the predetermined

5   maximum following the instruction for placing image data of

6   one or more subpicture elements, redefining the subpicture

7   areas of the picture image.

1   16. The computer software product of claim 11, wherein:

2   the at least one of the overlapping subpicture areas

3   comprise the overlapping subpicture areas that are capable of

4   receiving image data from the identified subpicture area so

5   that the amount of image data in the identified subpicture

6   area is less than the predetermined maximum amount.

1   17. The computer software product of claim 11, further

2 comprising an instruction for:

3   selectively redefining the subpicture areas of the

4 picture image.

1   18. The computer software product of claim 17, further

2 comprising an instruction for:

3   initially receiving a picture scheme for the picture

4 image defining the subpicture areas within the levels;

5   wherein the instruction for selectively redefining

6 comprises:

7   extracting placed subpicture elements;

8   receiving a new picture scheme for a new picture

9 image; and

10   repeating the instructions of selecting a subpicture

11 element, identifying a subpicture area, placing the image

12 data, identifying overlapping subpicture areas and placing

13 one or more subpicture elements for each of the extracted

14 subpicture elements.

1   19. The computer software product of claim 11, further

2   comprising an instruction for:

3   identifying the overlapping subpicture area capable of

4   receiving the greatest amount of image data from the

5   identified subpicture area; and

6   upon a determination that the amount of image data in

7   the identified subpicture area less the greatest amount of

8   image data following the instruction for placing exceeds a

9   predetermined minimum amount, redefining the subpicture areas

10   of the picture image.

1   20. The computer software product of claim 11, wherein:

2   image data in each subpicture area is individually

3   transportable between memory in the graphics display system

4   and display monitor device therein.

1   21. A graphics display system for organizing image data

2 forming a picture image defined by a plurality of levels,

3 each level including a plurality of subpicture areas

4 corresponding to a different level of image data resolution

5 relative to image data resolution levels corresponding to

6 subpicture areas in other levels, comprising:

7   a processor; and

8   a memory device having computer software code stored

9 therein, the processor and the memory device being capable

10 of:

11   identifying a subpicture element having image data

12 for inclusion in the picture image;

13   identifying a subpicture area in which the subpicture

14 element may be placed, the identified subpicture area being

15 in the lowest possible level of the picture image;

16   placing the image data of the subpicture element in the

17 identified subpicture area;

18   upon a determination that the amount of image data in

19 the identified subpicture area exceeds a predetermined

20 maximum amount following the placing, identifying overlapping

21 subpicture areas in a level corresponding to the next higher

22 image data resolution level that overlaps the identified

23 subpicture area; and

24   following the identifying, placing image data of one or

25   more subpicture elements from the identified subpicture area

26   into at least one of the overlapping subpicture areas.

1   22. The graphics display system of claim 21, wherein the

2   processor and memory device being further capable of:

3   repeating the selecting a subpicture element,

4   identifying a subpicture area, placing the image data,

5   identifying overlapping subpicture areas and placing one or

6   more subpicture elements for a new subpicture element.

1   23. The graphics display system of claim 21, wherein the

2   processor and memory device being further operable for:

3   upon a determination that the amount of image data in

4   the identified subpicture area exceeds a predetermined

5   maximum amount following the placing and that the identified

6   subpicture area is in a level corresponding to a highest

7   image data resolution level, redefining the subpicture areas

8   of the picture image.

1   24. The graphics display system of claim 21, wherein the

2   processor and memory device being further operable for:

3   upon a determination that the number of overlapping

4   subpicture areas is zero, redefining the subpicture areas of

5   the picture image.

1   25. The graphics display system of claim 21, wherein the

2   processor and memory device being further operable for:

3   upon a determination that the amount of image data in

4   the identified subpicture area exceeds the predetermined

5   maximum following the placing of image data of one or more

6   subpicture elements, redefining the subpicture areas of the

7   picture image.

1   26. The graphics display system of claim 21, wherein:

2   the at least one of the overlapping subpicture areas

3   comprise the overlapping subpicture areas that are capable of

4   receiving image data from the identified subpicture area so

5   that the amount of image data in the identified subpicture

6   area is less than the predetermined maximum amount.

1   27. The graphics display system of claim 21, wherein the

2 processor and memory device being further operable for:

3   selectively redefining the subpicture areas of the

4 picture image.

1   28. The graphics display system of claim 27, wherein the

2 processor and memory device being further operable for:

3   initially receiving a picture scheme for the picture

4 image defining the subpicture areas within the levels;

5   wherein the selectively redefining comprises:

6   extracting placed subpicture elements;

7   receiving a new picture scheme for a new picture

8 image; and

9   repeating the selecting a subpicture element,

10 identifying a subpicture area, placing the image data,

11 identifying overlapping subpicture areas and placing one or

12 more subpicture elements for each of the extracted subpicture

13 elements.

1   29. The graphics display system of claim 21, wherein the

2   processor and memory device being further operable for:

3   identifying the overlapping subpicture area capable of

4   receiving the greatest amount of image data from the

5   identified subpicture area; and

6   upon a determination that the amount of image data in

7   the identified subpicture area less the greatest amount of

8   image data exceeds a predetermined minimum amount following

9   the step of placing, redefining the subpicture areas of the

10   picture image.